Species Tag:	32001	Species Name:	O2
Version:	3		Molecular oxygen, $^{16}O_2$
Date:	June 1989		X $^3\Sigma_g^-$, v = 0
Contributor:	H. M. Pickett		
Lines Listed:	237	Q(300.0)=	218.675
Freq. (GHz) <	9928	Q(225.0)=	164.135
Max. J:	61	Q(150.0)=	109.597
LOGSTR0=	-31.5	Q(75.00)=	55.195
LOGSTR1=	-18.7	Q(37.50)=	28.035
Isotope Corr.:	0	Q(18.75)=	14.514
Egy. (cm^{-1}) >	0.0	Q(9.375)=	7.870
μ_a =	magnetic	A=	
μ_b =		B=	43099.795
μ_c =		C=	

Additional partition function values are:
Q(275) = 200.426
Q(250) = 182.231
Q(200) = 145.919

The measurements and calculational method are from T. Amano and E. Hirota, 1974, J. Mol. Spect. **53**, 346. The Raman lines of O_2 (M. Loete and H. Berger, 1977, J. Mol. Spect. **68**, 317) were used with the millimeter wavelength measurements and the submillimeter line of W. Steinbach and W. Gordy (1973, Phys. Rev. **A8**, 1953) in a combined fit of the v = 0 and v = 1 transitions. New measurements in the far-infrared by L. R. Zink and M. Mizushima, 1987, J. Mol. Spect. **125**, 154, are included. The intensities of the magnetic dipole transitions have been calculated using the g values obtained from magnetic resonance by K. D. Bowers, R. A. Kamper, and C. D. Lustig, 1959, Proc. Roy. Soc. London **A251**, 565. The zero-frequency absorption is included but the frequency is set to a synthetic frequency of $|g|J$ for the given level. The intensity of these zero-frequency absorptions is based on the synthetic frequency, using the equations for integrated intensity given in Section 3.